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April 17.

The President, Samuel G. Dixon, M.D., in the Chair.

One hundred persons present.

A paper entitled "A Review of the Physæ of Northeastern Illinois," by Frank C. Baker, was presented for publication.

The death of Charles E. Smith, a member, on the 15th inst., was announced.

Respiratory Quotient and Loss in Volume of Expired Air.—Dr. Henry C. Chapman called attention to the fact that the so-called "respiratory quotient," as originally defined by Pflüger[1] is the ratio of the weight of the oxygen absorbed during inspiration to the weight of the oxygen in the carbon dioxide exhaled during expiration. Inasmuch, however, as the volume of carbon dioxide formed is equal to the volume of oxygen entering into its formation, the "respiratory quotient" is usually defined as being the ratio of the volume of oxygen absorbed to the volume of carbon dioxide exhaled. Thus, for example, on the supposition that 100 litres of air be inspired, that 4.78 litres = 6.834 gr. of oxygen be absorbed, and that 4.34 litres = 6.205 gr. of oxygen be exhaled, the respiratory quotient will be

$$\frac{\text{Oxygen}}{\text{Oxygen}} = \frac{6.205\text{ gr.}}{6.834} = \frac{4.34\text{ lit.}}{4.78} = 0.907$$

or

$$\frac{\text{Carbon dioxide}}{\text{Oxygen}} = \frac{4.34\text{ lit.}}{4.78} = 0.907$$

It will be observed that in making use of the expression "respiratory quotient" in the sense used by Pflüger, it is indifferent whether the oxygen absorbed and that exhaled in the carbon dioxide be estimated in grammes or litres, but that in the second case the ratio will be only 0.907, when the ratio of volumes are compared. It is also quite obvious, though it appears to have hitherto escaped the attention of physiologists, that on the supposition that the "respiratory quotient" = 0.907, the loss in the volume of the expired air, as compared with that inspired, must be less than the one-fiftieth of a volume, as usually stated, and as originally determined by Despretz,[2] rather the one-two hundred and fiftieth

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[1] *Pflüger's Archiv*, XIV, 1877, S. 472.

[2] *Annales de chimie et de physique*, XXVI, p. 337.